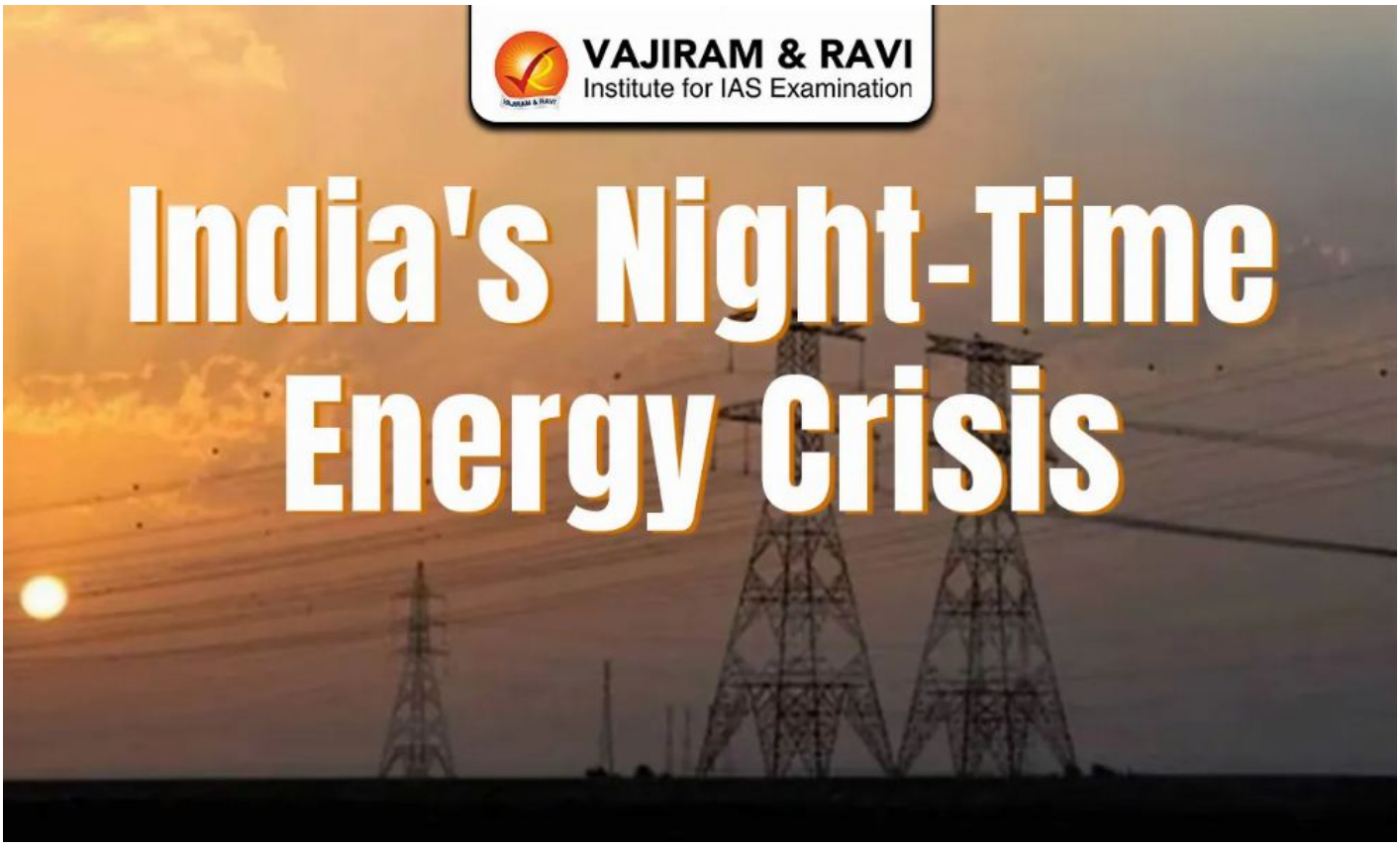
India’s Night-Time Energy Crisis – Power Grid Under Pressure

April 29, 2026 • vajiramandravi.com



India’s Night-Time Energy Crisis Latest News

- India is currently facing an **unprecedented** electricity **demand** surge, with peak power consumption hitting record highs driven by early and intense heatwave conditions.
- This episode is especially noteworthy not only because of the magnitude of demand but also because it is most severe **after sunset**, when the nation’s enormous **solar** power is **unavailable**.

The Record Demand Surge

- According to the Grid India data, India’s peak power demand touched a historic **256 GW** on 25th April, 2026, with a shortfall of around 4.2 GW at 10:39 PM.
- A day earlier, saw a peak demand of 240 GW at 10:34 PM, accompanied by a steepest recorded shortfall of 5.4 GW.

- Crucially, daytime peak demand (around 3:45 PM) was met without any shortage, exposing a **structural vulnerability**: the grid can handle solar-hours demand, but struggles once the sun goes down.

The Solar Paradox

- India now has nearly **150 GW** of installed solar capacity, a testament to its clean energy ambitions.
- But this very success creates a new problem — a sharp evening drop-off in generation, sometimes called the "**duck curve**" effect, where supply falls steeply just as residential demand climbs due to cooling needs.
- The grid then falls back entirely on coal, gas, hydro, nuclear, and wind to bridge the gap during non-solar hours (6 PM–6 AM).

Why Coal Plants Failed to Deliver

- The immediate trigger for the shortfall was a spike in forced and partial **outages** in thermal power plants.
- While planned outages were expected at around 3 GW, forced and partial outages surged to nearly 26 GW, according to government sources.
- A senior official cited forced outages of around 18 GW in coal plants, with an additional 3–4 GW of partial outages, totalling around 21 GW of unavailable capacity.
- Thermal plants generated only 184–187 GW against an installed capacity of 227 GW — a significant gap.
- **Extreme heat** itself was the culprit: high ambient temperatures put additional thermal stress on generation equipment, reducing plant availability exactly when the grid needed it most.

Price Shock in the Spot Market

- The grid stress has fed directly into electricity prices.
- Data from the Indian Energy Exchange (IEX), India's largest power trading platform, shows spot prices in the Day Ahead Market (DAM) hitting the regulatory ceiling of **₹10** per kWh at night, before crashing to around **₹1.5** per kWh during the day.
- This reflects a dramatic intra-day swing highlighting the solar-hours surplus and night-time scarcity.

What Makes 2025-26 Different

- Traditionally, India's peak power demand arrives during **June–July** or September–October.
- This year, the surge has arrived in **April** itself — an unusually early onset linked to an intense, prolonged heatwave.
- The last time annual peak demand was reached this early was in 2022–23. Year-on-year, the jump is steep: April 2025 saw a peak of 235 GW, compared to 256 GW already recorded in April 2026.

Key Challenges

- Evening demand surge coinciding with the complete withdrawal of solar power creates a dangerous daily window of **vulnerability**.

- Forced outages in coal plants during peak heat — the very conditions that drive maximum demand — expose a thermal generation **reliability** problem.
- Absence of utility-scale **battery storage** means there is no buffer to store surplus daytime solar energy for night-time use.
- Early seasonality of heatwaves is **compressing** the grid planning cycle, leaving less time to prepare.
- Spot price volatility (₹1.5 to ₹10/kWh within the same day) signals market stress and could **burden** distribution companies (**DISCOMs**).

Way Forward

- **Battery Energy Storage Systems (BESS)**: Scaling up grid-scale storage is the most direct solution to the solar drop-off problem, enabling excess afternoon solar power to serve evening demand.
- **Demand-side management**: Incentivising large consumers to shift loads away from the 6–10 PM window can ease the peak.
- **Thermal plant resilience**: Heat-proofing of coal plant equipment and improving predictive maintenance to reduce forced outages during summer months.
- **Pumped storage hydro**: Expanding pumped hydro capacity as a proven, large-scale storage technology.
- **Operationalising idle gas-based capacity**: For evening peak support, alongside a coherent domestic gas pricing framework.
- **Transmission strengthening**: Expanding inter-regional transmission capacity so surplus power in one region can flow to deficit zones without congestion.

Conclusion

- India’s power crisis of April 2026 is a preview of a **structural challenge** that will only deepen as solar capacity expands and climate change brings forward and intensifies heatwaves.
- The country has made remarkable strides in renewable energy, but the grid architecture — storage, thermal backup reliability, and demand management — has not kept pace.
- The issue sits at the intersection of energy security, climate adaptation, grid infrastructure, and economic governance, making it a rich case study in the **complexities** of India’s energy transition.

Source: IE
